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Disease and Dowry: Community Context, Gender, and Adult Health in India

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Abstract

Despite growing research on health and residential contexts, relatively little is understood about gendered contexts that are differentially important for women's and men's physical health in low- and middle-income countries. This study advances prior knowledge by examining whether the local frequency of a salient and gendered practice in India—dowry—is associated with gender differences in physical health (acute illness, illness length, and chronic illness). Analyses are conducted using multilevel logistic and negative binomial regression models and national data on men and women across India ($N = 102,763$). Results show that as dowry frequency increases in communities, not only do women have a greater likelihood of poor health across all three health outcomes, but men also have a greater likelihood of acute illness and illness length. Men, however, have lower likelihood of chronic illness as the frequency of dowry increases in communities. In the case of all three health outcomes, results showed consistently wider health gaps between men and women in communities with higher frequency of dowry.

International forums have increasingly drawn attention to gender as an important axis of health disparity.¹ The relationship between gender and health is complex and paradoxical; although women usually live longer than men, women tend to experience more illness (Barford et al. 2006; Read and Gorman 2010; Verbrugge 1984). A growing literature has examined an array of micro-level influences on gender differences in health, especially socioeconomic status (SES) (Gorman and Read 2006; Walters, McDonough, and Strohschein 2002); however, the role of contextual factors in shaping gender differences in health has remained understudied (Bird and Rieker 2008:117–145; Read and Gorman 2010:381). Especially lacking within this literature is research from low- and middle-income countries. Contextual effects research using population-based samples in low- and middle-income countries has focused on child health (Smith-Greenaway and Trinitapoli 2014), reproductive behavior (Desai and Wu 2010), and intimate partner violence (Koenig et al. 2006), while little contextual research has examined gender differences in acute and chronic illnesses among adults. This gap in knowledge is surprising given the demonstrated importance of geographic contexts in women’s empowerment and demographic behavior (Jejeebhoy 2000; Mason and Smith 2000).

India provides an important setting in which to examine geographic contexts, gender, and health. India has one of the largest gender gaps in health, ranked third out of 134 countries (Hausmann, Tyson, and Zahidi 2010) and has one of the lowest adult female mortality advantages as compared to that of men (Arber and Thomas 2006). The differences in health between males and females may not only stem from individual-level sources, but also from how the social institutions of gender are woven into the fabric of communities (Martin 2004). India provides a particularly informative case because of rigorous gendered practices in the country and variations in these practices across local contexts (Chakraborty and Kim 2010; Dyson and Moore 1983).

The dowry system is one such geographically patterned gendered practice, and community support for dowry practice may substantially contribute to gender-based health gaps across India. Prior research and theory suggest that the effects of dowry extend beyond dowry-practicing households; local prevalence of dowry can affect gendered exposure to an array of stressors and unequal resource allocations throughout a community, and these exposures are patterned by gender. Although dowry exchange has received considerable attention due to its growth, illegality, and links to various negative outcomes for women (Acharya, Sabarwal, and Jejeebhoy 2012; Basu 2001; Bloch and Rao 2002; Kumari 1989; Rocca et al. 2009), its consequences for adult physical health have not been documented. In this study, I contribute to literatures on gender and health, communities and health, social status and health, and geographic contexts in India. I do so by using national multilevel data from India ($N = 102,763$) to examine relationships between the community prevalence of a salient gendered practice—dowry exchange—and gender differences in adult health. Importantly, I incorporate an array of controls for gender discrimination and SES to help isolate the community-level effects of dowry practice.

Background and Hypotheses

Gender, Community Context, and Health

Gender shapes health in various ways, including through material and psychosocial pathways. Compared to men, women tend to have less control over socioeconomic resources protective for health (McDonough and Walters 2001). Additionally, women are more likely to experience stressful life events and depression, and to have lower self-esteem and a lower sense of control compared to men (Hopcroft and Bradley 2007; Read and Gorman 2010).

While gender certainly influences health at the micro level, a handful of studies suggest that macro-level factors play an important role at the intersection of gender and health. This should not be surprising given that scholars have long shown that health is shaped by broader

environmental factors (Patrick and Wizicker 1995) and a growing body of research confirms that residential contexts shape health in important ways (Hill, Ross, and Angel 2005). With few exceptions (e.g., Ellaway and Macintyre 2001; Stafford et al. 2005), there has been relatively little investigation into how community contexts shape gender differences in health (Bird and Rieker 2008:117–145; Read and Gorman 2010:381). Some studies have focused on features of communities that influence all residents, in many cases finding greater contextual effects on women’s physical health than men’s (LeClere, Rogers, and Peters 1997; Robert and Reither 2004; Roman and Chalfin 2008; Stafford et al. 2005; Sundquist et al. 2006). Yet, in large part, these studies examined elements of the built environment and community characteristics such as social capital, disorder, and disadvantage.

The above community characteristics may shape the health of all residents to a greater or lesser extent because of differential exposure to residential environments. Some community characteristics, however, may be particularly relevant to women or men because they are gendered (e.g., local gender role beliefs, political environment) (Ellaway and Macintyre 2001). Local gender equality, often measured in gender ideology, or in political or labor force domains, tends to have a protective association with the health of women and sometimes men (Chen et al. 2005; Jun et al. 2004; Kawachi et al. 1999; McAlister and Baskett 2006; Sen, Östlin, and George 2007; Young 2001). These studies illustrate what Sen et al. (2007) call “gendered structural determinants of health.” Gendered structures can affect women’s health differently than men’s—not necessarily because of women’s greater exposure to the community environment, but because community characteristics directly pertain to gendered symbols, beliefs, stressors, resource allocations, and opportunities woven into the fabric of local communities. In these ways, gender is as much a social structure or “gender order” as it is a characteristic of individuals (Connell 1987; Martin 2004).

More recently, proponents of an institutional or macro-level understanding of gender have emphasized the importance of “system[s] of social practices” and not simply local shared gender beliefs (Lorber 1994; Martin 2004; Ridgeway 2007; Risman 2004). Beliefs undergirding gender structures flow through various systems and practices in society such as the labor market, property rights, or marriage practices. In this way, these systems and practices that comprise gendered social structures become “bearers of gender” (Elson 1999) and indicate how people *do* gender (Connell 1987; West and Zimmerman 1987). In India, how women’s (and men’s) lives unfold depends substantially on local gendered social institutions such as education, economic activity, and the marriage system (Jejeebhoy 2000; Malhotra, Vanneman, and Kishor 1995). While community-level gender structures have been operationalized in various ways by researchers (Koenig et al. 2003; Luke and Xu 2011; Moursund and Kravdal 2003), the dowry system is an understudied yet important institutional feature of gender structures in India (Caldwell, Reddy, and Caldwell 1983; Mandelbaum 1988). Repeated enactments of the gendered practice of dowry is part of what forms the social structures of gender in Indian communities—gender structures that also act back on individuals’ lives.²

Dowry, Gender, and Health

The patrilineal joint-family system and social status hierarchies are important backdrops to dowry in India (Skinner 1997). Despite the liberalization of India’s economy and the availability of global media, patrilineal joint-families, arranged marriage, and dowry continue to play a major role in women and men’s lives in contemporary India (Allendorf 2013; Derner 2008). Marriage in India tends to be hypergamous; brides join the families of grooms of higher status and increasingly give dowry in the process. Dowry has a long history in Asia (Lee 1982), and in contemporary India it is sometimes described as a groom-price used to secure a higher-quality (status) husband. It often consists of negotiated payments of conspicuous consumer goods (e.g., a car) from the bride’s family to the groom’s. Communities with high frequency of

dowry giving—where dowry is a community supported and defended practice—shape the health of individual women and men through several key mechanisms: community-level dowry affects exposure to status competition and anxiety, exposure to unequal local resource allocations, and exposure to community network stress.³

Status Anxiety. Dowry is given from the bride's family to the groom and his family. At one time concentrated among upper caste Indians but now common in other groups, dowry provides a tool for people to modify traditional status structures, while at the same time securing prestige for one's family and one's self (Roulet 1996:93; Srinivas 1977, 1984; Srinivasan 2005). By marrying a daughter to a high-status groom, the bridal family solidifies and increases social prestige (Bloch, Rao, and Desai 2004; Harrell and Dickey 1985; Mandelbaum 1988:24, 68; Roulet 1996). Using dowry, bridal families in a community vigorously compete for high status matches. In fact, using dowry to arrange a respectable marriage for a daughter, and munificently giving dowry in the process, may be a "conclusive seal and signet of success" (Mandelbaum 1988:121), something parents talk about for the rest of their lives (Caldwell et al. 1983). Grooms and their families are not spared in these status competitions as they often also compete for a well-dowered bride (Schlegel 1993). Strong participation in and support for dowry practice in communities should lead to elevated levels of status insecurity and competition within communities. Such contexts will lead to worse population health because of community residents' exposure to the pressure, strain, and chronic stress⁴ of status insecurity, fierce competition, and status appraisals (Denson, Spanovic, and Miller 2009; Dickerson and Kemeny 2004; Marmot 2004; Seeman et al. 2014; Wilkinson and Pickett 2006).

While this status competition negatively affects both men and women, women are likely to be more negatively influenced because of a lower sense of control over their environment (Ross and Mirowsky 2002), direct dowry comparisons among women (Raheja and Gold 1994:86), less control over dowry negotiations, and the strong connection between dowry

prestige and women's social recognition and value (Philips 2004; Raheja and Gold 1994; Srinivasan 2005).

Local Resource Allocations. Communities with high frequency of dowry exchange can differentially shape resources and opportunities available to men and women regardless of dowry practice and discriminatory allocations within particular households. Prior research has revealed the existence of gender discrimination with regard to intra-household resource allocation such as nutrition and medical care (Arnold, Choe, and Roy 1998; Barcellos, Carvalho, and Lleras-Muney 2014; Mehrotra 2006; Singh 2012). In this vein of research, dowry provision has been identified as a contributing factor in female discrimination in resource allocations (Lahiri and Self 2007; Rosenzweig and Schultz 1982; but see Frijters and Sharma n.d.). If large sums of money must be spent on a daughter's future dowry, and she and her children are not expected to subsequently contribute to the natal household, parents may decide to allocate fewer resources for her immediate needs (Caldwell et al. 1983; Schlegel 1993). This state of affairs in turn will shape the demand and availability of such resources in the local community's broader market of resources and opportunities, lowering access to health-promoting resources for women and making local "female-specific services ... more likely to be neglected" (Dyson and Moore 1983:50). In sum, women's health-shaping resources and opportunities are constrained in communities supportive of dowry practice; that is, regardless of whether women experience discrimination within the household, they may face resource and opportunity constraints in the surrounding community.

Network Stress. An individual's health can be substantially influenced by stressful events that occur to members of the individual's social networks or local community (Kessler and McLeod 1984). Dowry-related stress may not only affect members of dowry-practicing families, but may also extend to other individuals in their community and be particularly noxious for other women. From an early age, a woman's life may be marked by guilt and stress with the knowledge that her family has strained itself to raise money for her dowry (Dube 1988; Das

Gupta 1987; Mandelbaum 1988:43–44). Further, if a dowry does not meet expectation, the groom's family may place considerable pressure on the bride to persuade her natal family to provide a larger dowry. This pressure can come in the form of verbal threats, physical violence, and forced sex, and may be applied to the point of death (Acharya et al. 2012; Bloch and Rao 2002; Diamond-Smith, Luke, and McGarvey 2008; Jejeebhoy and Cook 1997; Jeyaseelan et al. 2007; Kumar 2003; Kumar et al. 2005; Kumar and Kanth 2004; Rao 1997; Rastogi and Therly 2006; Rocca et al. 2009; Samuel 2002; Sharma 1993).

Even if the natal family provides an acceptable dowry, the groom's family may make additional demands from the natal family over the course of many years, and may threaten to neglect or abuse the bride if demands are not met. In the course of such demands, the bride is often used as an intermediary to communicate demands back to the natal family, causing her relation to her family to become even more “shifting and fluid” (Raheja and Gold 1994:81). In this situation, not only can the bride suffer neglect and abuse; she may also feel substantial interpersonal strain and related physical health problems (Krause 2005), as well as ongoing psychological stress (Mandelbaum 1988), due to her duty of conveying threats to her natal family. Indeed, studies have found dowry demands and harassment to be associated with mental health problems for women (Kermode et al. 2007; Kumari 1989; Pereira et al. 2007; Raguram et al. 2001). In a recent four-state population-based study, husband dissatisfaction with dowry was strongly associated with mental disorders for married rural women in India (Kumar et al. 2005; Shidhaye and Patel 2010).

Women's dowry-related stress likely influences the lives of men and women whose households do not necessarily practice dowry yet. Women's greater embeddedness in the social networks of other women means that, compared to men, women in dowry-supporting communities are more likely to be exposed to the dowry-related stress of others. Compared to men, women are more exposed to network members' stress and tend to be more strongly affected

by network stress (Fuhrer et al. 1999; Haines, Beggs, and Hurlbert 2008; House 1987; Kawachi and Berkman 2001; Kessler and McLeod 1984; Turner 1994). Although women's social networks can provide social support, prior research has found that stress in women's social networks plays a larger role in women's health than does the support in women's social networks (Kawachi and Berkman 2001; Turner and Avison 2003). Additionally, indirect exposure to stressful events such as violence is associated with physiological symptoms of distress (White et al. 1998). In short, just as prior research has found a ripple effect of stress in social networks, dowry-related stress can not only affect individuals and their families, but also extend to others, especially other women in the local community. Network stress also comes with a reminder that dowry practice may be adopted in one's own household. Indeed, in a relatively short period of time, the spread of dowry to new regions and social groups "has been rapid and traumatic" (Caldwell et al. 1983:348) and has undermined women's status (Kapadia 1998:14).

This study's first hypothesis is based on the above arguments regarding how dowry exchange in communities shapes health: *Hypothesis 1. Women and men residing in communities with higher frequency of dowry will have greater odds of chronic and acute illness and longer illness as compared to those in other communities.*

Thus far this study has focused on detrimental impacts to women's and men's health, the direction of effects best supported by the literature. It is conceivable, however, that in the case of men's health, community dowry may also prove beneficial. Regardless of whether men give or take dowry themselves, prevailing local norms and opportunity structures shape their lives (Ridgeway 2007). As previously discussed in the case of local markets for resources and opportunities, rather than experience constrained choices, men experience advantage in dowry-supporting communities. In other words, such communities enable men to encounter expanded opportunities and lead men to more easily acquire health-protecting resources. This overall state of affairs could result in men's lower levels of stress and increased resources, thus reducing

men's likelihood of illness.

As noted above, the negative effects of community support for dowry should be greater in magnitude for women than men. That is, both women and men are exposed to the noxious impacts of status competition and network stress, but the magnitude of the effects are larger for women than for men. This is because women have disadvantages with regard to community status competition such as lower levels of control and a strong connection between dowry prestige and women's social recognition (Ross and Mirowsky 2002; Srinivasan 2005). Women are also more exposed to network stress in communities because they are more embedded in other women's networks and are more strongly affected by network stress (Kessler and McLeod 1984). In the case of unequal resource allocations in communities, the negative effects are only for women, which should also contribute to a wider gender gap in health (Caldwell et al. 1983). Taken together, the above arguments lead to the second hypothesis: *Hypothesis 2. The gender gap in the odds of chronic and acute illness and illness length will widen with more frequent dowry practice in communities.*

Data and Methods

To test these hypotheses this study uses data from the India Human Development Survey, 2005 (IHDS). The IHDS was funded by grants provided by the National Institutes of Health and coordinated by researchers from the University of Maryland and the National Council of Applied Economic Research. The IHDS is a national survey of 41,554 households across 33 states and union territories in India (Desai, Vanneman, and National Council of Applied Economic Research 2010). The study was conducted in local languages in all Indian states and union territories, excluding Lakshadweep and Andaman and Nicobar Islands⁵, and across 1,503 villages and 971 urban blocks (Desai, Dubey, et al. 2010). Male-female pairs of interviewers conducted two one-hour face-to-face interviews. The IHDS has a response rate of 92% and

compares favorably with the 2001 Census of India, the 2004-2005 National Sample Survey, and the 2005-2006 National Family Health Survey III.

This study uses data on 102,763 men and women aged 25 and above with complete information on all study variables. To measure the characteristics of community contexts, I focus on districts. The use of districts in research on India is useful because districts are important administrative units and indicate historically and culturally meaningful geographic boundaries (Malhotra et al. 1995). Because urban and rural contexts differ dramatically in India, I follow the approach of the IHDS principal investigator (Desai and Andrist 2010; Desai and Wu 2010) by partitioning urban and rural areas of districts and constructing contextual variables of aggregated individual-level data. For simplicity, the resultant 491 contextual units are referred to as communities.

Dependent Variables

I examine three health outcomes: acute illness, illness length, and chronic illness.⁶ I report the mean or proportion for all three health outcomes from the full sample and that of women and men separately (table 1). *Acute illness* is reported by 9.6% of the sample and is a dichotomous variable that measures whether the respondent had a fever, cough, or diarrhea in the last month (1 = yes; 0 = no). The proportion of women (.121) reporting having had one of these acute illnesses is larger than the proportion of men (.072). Given that acute illness is a dichotomous variable, I use multilevel logistic regression. *Illness length* (the number of days with acute illness in the last month) is a heavily right-skewed variable and the overall variance is considerably larger than the mean (.826); hence in regression analysis below, I fit a multilevel negative binomial model to the data with illness length modeled as a count variable for each person (range = 0-30). Women report more days with a minor illness in the last month (1.003) compared to their male counterparts (.652). Finally, *chronic illness*, a binary indicator, is coded as one if the respondent had ever been diagnosed with hypertension, heart disease, or diabetes.

Chronic illness is reported by 5% of respondents with a higher proportion of women (.051) reporting chronic illness than men (.042). I use multilevel logistic regression to analyze chronic illness.⁷

Table 1 here

Independent Variables

Table 2 presents means and proportions for independent variables. This study's focal independent variables are community-level frequency of dowry giving and gender (1 = female). In part due to the Dowry Prohibition Act, reliable national information on dowry giving—an illegal practice in India—is famously hard to gather. In collecting dowry data, the IHDS did not directly ask respondents about their households' dowry practices because of the sensitive nature of dowry. Instead, the IHDS collected information about respondents' perception of dowry practice among families in the community (Desai, Dubey, et al. 2010). Interviewers asked: "Generally in your community for a family like yours, is [item] given as a gift at the time of the daughter's marriage?" At the individual level, dowry practice comes from a dichotomous variable coded as one if the respondent answered affirmatively to any of the following large durable goods perceived to be given: television, car, scooter, or refrigerator. Following the variable construction strategy of the IHDS principal investigator (Desai and Andrist 2010), this variable is aggregated to the community level as a measure of community-level frequency of dowry. The perception of dowry-giving in a locale is important because it measures a visible practice. Such a practice is well-suited to social structural theories of gender (Martin 2004), which emphasize social practices.⁸ It is also worth noting that community dowry is not a marker of low community SES. Community-level dowry is positively correlated with community-level SES (assets, income, consumption expenditures, and education).

Table 2 here

I also include other important community-level control variables. Average waiting time for medical care taps the accessibility of local health care, which can be important in the course of an illness. This variable is aggregated from a variable measuring the number of minutes spent waiting during the respondent's last visit to a healer, clinic, or hospital for an acute illness. Electricity usage, a measure of local infrastructure, is the average number of hours of electricity per day.

I include several measures of SES constructed by the IHDS aggregated to the community level: assets (an index of 30 household items), income logged (a combination of over 50 household income sources), consumption expenditures logged (total household consumption expenditures combining 47 items), highest female education in the household, and women's wage labor employment measured as a proportion at the community level.

To tap the extent to which associations between community dowry and health are driven by other local dynamics, I incorporate several controls related to local traditionalism and conflict. Analyses also control for the average fertility of women in communities. For conflict, I control the percent of respondents reporting village conflict in communities. I seek to assess whether traditional local gender-biased schemas play a role in the relationship between community dowry and health by controlling for three binary measures of gender-biased beliefs aggregated to the community level. First, son support attitudes is measured as whether the respondent indicated "son" when asked who the respondent expects will provide financial support in old age. Second, wife beating approval is measured by a question that asked whether in the respondent's community it is usual for husbands to beat their wives if the natal family does not give the expected dowry. Third, to tap male-biased education attitudes respondents were asked whether girls should be educated more or as much as boys or whether it makes more sense to educate boys more.

A variety of covariates are controlled as individual-level variables. I code caste/religion as a series of eight binary variables: Brahmin, forward caste, other backward caste, scheduled caste, Adivasi, Muslim, Other (Sikh, Jain, and Buddhist), and Christian. I also control for age (in years), marital status (married = 1), number of children, and size of the household (number of residents).

To tap the availability of health care, I include a dichotomous indicator of whether one of the following exists in the respondent's village (urban residents are coded as one): primary health center, health subcenter, private hospital, community health center, government health center, government maternity center, government disease facility, private midwife, other government medical facility, private trained doctor, or private untrained doctor. Urban/rural residence is controlled with a series of dummy variables: major metro area (Delhi, Mumbai, Kolkata, Chennai, Bangalore, or Hyderabad), urban slum, other urban area, villages with low levels of infrastructural development, and villages with high infrastructural development. High infrastructure villages are defined as those with at least one of the following facilities: electricity, paved road, grocery store, bazaar, bank, post office, police station, bus stop, or mobile access to telephone and landline (Desai and Wu 2010). The number of years the respondent has lived in his or her current location is measured in years (logged). The nature of the data allows not only the inclusion of individual-level and community-level variables, but also a series of state binary variable controls (not displayed for the sake of brevity) which are important given regional differences in health (Desai, Dubey, et al. 2010).

Individual-level SES controls include: a household asset index, household income (logged), household consumption expenditure (logged), housing aid receipt (0, 1), literate adult in household (0, 1), and educational attainment measured in years as a series of dummy variables (none, 1 to 5, 6 to 9, 10 to 12, and college or above).

A series of binary variables measure the respondent's expectations regarding who usually provides financial support to widows in old age (natal family, husband's family, both, or neither). I also enter an endogamous marriage indicator. Finally, I include an individual-level binary variable for the respondent's perception of local conflict.^{9 10}

Analysis

Since gender is not limited to individual-level attributes but is also comprised of broader social arrangements and cultural contexts, this study assesses relationships between community- and individual-level variables using multilevel modeling.¹¹ Unlike single-level regression, multilevel modeling appropriately produces estimates of standard errors of contextual measures, uses the correct degrees of freedom for contextual units, and corrects for correlated errors among persons in the same contextual units. Here multilevel modeling is used to estimate variation in health outcomes between and within communities, also adjusting for nonindependence stemming from clustering within communities (Raudenbush and Bryk 2002). After taking into account individual-level associations, between-community analyses regress the community average health scores on the characteristics of communities, such as community dowry practice. In other words, contextual effects on health are estimated simultaneously with individual-level effects, which is necessary given this study's multilevel conceptualization of gender.

Results

Calculating an approximate intra-class correlation coefficient (ICC) for a null logistic multilevel model determines that the correlation in acute illness between two randomly selected individuals in the same randomly chosen community is .081. In other words, 8.1% of the total variance in acute illness can be attributed to the community in which individuals reside. The first model in table 3 presents the results of acute illness regressed on the interaction of gender by community-level dowry, in addition to other individual-level and community-level controls. The model shows a significant cross-level interaction. In this model, the female coefficient is

positive, the community dowry coefficient is positive, and the cross-level interaction of female by community dowry is positive. Figure 1 graphs this cross-level interaction and indicates that the gender gap in acute illness exists at all levels of community dowry. However, as community dowry increases, the gender gap widens and becomes particularly wide at high levels of community dowry. The gender gap in acute illness increases by 89.6% moving from a low dowry frequency community (one standard deviation below the mean) to a high dowry frequency community (one standard deviation above the mean). Going from minimum to maximum values of community dowry, the gender gap grows by 178.6%—a considerable widening.

Table 3 here

The second health outcome is illness length. According to the ICC of a null model, 10.8% of the variance of illness length can be attributed to community-level characteristics. The second model of table 3 shows that net of individual and community-level controls, there is a significant cross-level interaction between gender and community dowry. The coefficient for female and community dowry and the cross-level interaction are all positive in direction. The model indicates that as community dowry frequency increases, being female is associated with increased illness length. Being male is also associated with increased illness length as the community frequency of dowry increases, although this is a smaller increase than that for women. There is a gender gap in illness length at all levels of community dowry, but the gender gap widens in communities with a high frequency of dowry. Judging from predicted values, when comparing a low dowry community (one standard deviation below the mean) to a high dowry community (one standard deviation above the mean), the gender gap in illness length is 54.9% greater. The gender gap in illness length increases by 91.2% when going from a community with the minimum frequency of dowry to the maximum frequency of dowry. Figure 2 displays these relationships.

The final health outcome is chronic illness. The ICC suggests that the correlation in chronic illness between two randomly selected individuals in the same randomly selected community is .251. In other words, 25.1% of the total variance in chronic illness can be attributed to the community in which individuals reside. The third model in table 2 shows the results of a multilevel binary logistic regression of chronic illness on the cross-level interaction and control variables at individual and community levels. The coefficient for female is positive and that of community dowry is negative. The cross-level interaction between female and community dowry is positive. These results reveal that as community dowry increases, being female is associated with higher odds of chronic illness and being male is associated with lower odds of chronic illness. Figure 3 shows that even in communities with the lowest frequency of dowry, a chronic illness gap between men and women exists. As dowry frequency rises, women become increasingly likely to report suffering from chronic illness and men's chronic illness becomes less likely. Looking at figure 3 in tandem with predicted probabilities, the chronic illness gender gap increases by 70.4% when comparing a low dowry frequency community to a high dowry frequency community. Going from a community with the lowest frequency of dowry to a community with the highest frequency of dowry, leads to a 118.9% widening in the size of the chronic illness gender gap.

Discussion

Gender is as much a social structure or context as it is a characteristic of individuals. Gendered contexts shape women's health differently than men's through gendered practices, resource allocations, and stressors woven into the fabric of local communities. Despite growing research surrounding community effects on demographic outcomes, to date, relatively little is understood about gendered contexts that are differentially important for women's and men's physical health, especially in low- and middle-income countries. This study sheds new light at these intersections by using national data from India and multilevel modeling to examine

whether the community support for a salient and growing gendered practice in India—dowry—is associated with women’s and men’s health (acute illness, illness length, and chronic illness) and gender gaps in health. My first hypothesis, that community-level dowry should have contextual effects detrimental to women’s and men’s health, was generally supported. My results show that not only do women have worse health across all three health outcomes with increased community-level dowry, but men also fare worse in terms of acute illness and illness length with increases in community-level dowry. Contrary to this hypothesis, however, men fare better in terms of chronic illness with increases in community-level dowry. Analyses substantiated my second hypothesis, that gender gaps in health should widen with increased community-level dowry frequency. In fact, in the case of all three health outcomes, my results showed consistently wider health gaps between men and women in communities with high frequency of dowry. In sum, dowry-supporting communities are not simply associated with gender inequalities in acute illness or long periods of illness, but are also associated with inequalities in the odds of being sick at all, including suffering from chronic conditions. Importantly, all of my findings remain in well-controlled models holding constant multiple measures of SES and other potentially confounding factors at community and individual levels.

My finding that increased frequency of dowry in communities accompanies increased odds of illness for women, but not always for men, suggests that researchers cannot assume that gendered structural effects will be similar across all types of illness. Women’s increased odds of poor health with increased community-level dowry does *not* depend on type (acute versus chronic), supporting theoretical arguments that community dowry sets the stage for stress exposure and reduced access to resources for women. Like women, men show increased odds of acute illness and illness duration with increased community dowry. That men’s *decreased* odds of chronic illness also accompanies increases in community dowry, however, suggests that there is some merit in the alternate expectation for men that is at odds with general arguments in the

literature. As previously outlined, some prior research on gender-biased resource allocations may shed light on the protective contextual effects for men seen here. Research from India has repeatedly documented male preference in resource allocations and has linked this discriminatory behavior to dowry practice (Lahiri and Self 2007; Rosenzweig and Schultz 1982). Repeated male-biased resource decisions lessen demand for community-level resource allocations for women, including making local female-specific resources and services more likely to be constrained. In such communities, this same male preference should lead to overall expanded access to resources for men, including medical treatment. This, in turn, may help reduce men's odds of chronic illness.

There are additional possibilities for the mixed pattern of effects for men. Fewer health-damaging mechanisms are likely at work for men. For instance, although men may be exposed to some health-damaging network stress, it is unlikely that men have as many women in their personal networks, are sought out for social support regarding dowry stress, or are exposed to as many accounts of dowry abuse. Indeed, given the hierarchical gender relations across India, women may be reluctant to talk about dowry stress with male members of their personal networks. In the end, the levels, frequency, and duration of men's network stress in dowry-supporting communities may not be sufficiently powerful, frequent, or protracted to result in chronic illness. Combined with the resource inequalities previously noted, the balance of mechanisms may well result in protection from chronic illness for men. One may still ask why there are negative rather than protective effects for men's acute illness. One possibility is that whereas chronic illness is more directly dependent on an individual's own long-term living conditions, chronic stress, and resources, the acute illnesses measured in this study are communicable and so depend more directly on proximate others (e.g. female household members) compared to chronic illness. Community dowry may lead to acute illness among

women (e.g., a virus), which can easily spread to the men in their households, thus also leading to elevated rates of acute illness for men in dowry-supporting communities.

The protective effect of community dowry on men's chronic illness and its departure from some prior literature may have other possible explanations and important implications. Most simply, other prior research is sparse and does not measure community support for dowry or even community support for a gendered marriage practice. Instead, prior research focuses on macro-level gender equality policies, gender attitudes, or general community disadvantage (e.g., Kawachi et al. 1999). The impact on men of a gendered institution such as overall dowry practice in communities may differ compared to that of other community factors measured in prior research. Indeed, in recognizing that people *do* gender (West and Zimmerman 1987), proponents of an institutional understanding of gender have emphasized the importance of local cultural practices as carriers of gender (Elson 1999; Martin 2004; Ridgeway 2007). More attention to repeatedly enacted gendered *practices* pertaining to different life domains could advance future research on the gendered structural causes of health and further assess findings presented here.

My findings on the sensitivity of gender differences in health to community contexts also have implications for health research on material and symbolic dimensions of stratification in communities. The findings are surprising given that dowry-supporting communities are also high in SES. Prior contextual effects and gender research has generally found that gender gaps in health are smaller in high SES contexts (Bird and Rieker 2008:117–145). In my results, although contextual SES measures were generally not statistically significant, those that were significant were in the direction of worse health. It is possible that such an association between community SES and poor health in India exists because of India's particular stage in the epidemiological transition. Indeed, my results correspond to prior findings regarding the relationship between female excess in child mortality and SES in India (Murthi, Guio, and Dreze 1995; Subramanian et al. 2006; Subramanian and Selvaraj n.d.). Consistent with prior literature on SES and dowry,

my findings also imply that high SES contexts can promote gender performance in India, at least in terms of high status gendered practices such as dowry (Caldwell et al. 1983; Kapadia 1998; Srinivas 1984). Bringing such high-status gendered elements of communities into research on gender, local contexts, and health raises fruitful research questions. Can increased socioeconomic resources lead to more rigorous health-damaging gender practices and gender structures in some contexts? Ethnographic literature from India suggests that social mobility frequently goes hand in hand with “harshness toward women,” and such insights could inform further research on this question (Dube 2001; Kapadia 1998; Srinivas 1962:46).

Relatedly, a weakness in broader debates regarding the health effects of status inequality and psychosocial mechanisms such as relative deprivation is that the usual measurement (income inequality) taps only one aspect of social status (Wilkinson and Pickett 2009), leaving other dimensions of status unmeasured (Goldthorpe 2010). Indeed, cultural participation and consumption may be better measures of status and status insecurities in many contexts (Bourdieu 1984). As recent demographic research has suggested, conspicuous cultural practices such as dowry in local communities may be stronger drivers of relative deprivation in low-income contexts where cash income is limited, but symbolic capital can be expansive, comes with substantial rewards, and can be converted to other forms of capital (Ellison 2002; Roulet 1996). In this way, my findings take a step toward answering calls for gauging social status in more theoretically and contextually relevant ways (Layte and Whelan 2014).

Most national multilevel studies of health are limited in their reliance upon cross-sectional data, and this study is no exception. Lack of data ordered in time precludes making definitive statements about direction of causation; theory and prior research must be relied upon. Additionally, while my findings are generally consistent with the theoretical perspectives outlined (status anxiety, unequal resource allocations, and network stress), these theoretical perspectives are not directly measured in this study due to data limitations. For example, like

many population-based studies of health, the potency of this study's theoretical arguments is constrained by the lack of a direct measure of stress. Going forward, the inclusion of stress measures, measurement of other theorized mechanisms (e.g., status anxiety), and longitudinal data could help illuminate theoretical arguments.

Despite limitations, this study contributes new findings and adds to other research in drawing attention to dowry practice in India. Dowry is a contentious issue, with nearly two thirds of women expressing disapproval of dowry in a regional sample (Srinivasan and Lee 2004). Dowry has long been outlawed and has borne considerable anti-dowry social movement attention (Purkayastha et al. 2003). Researchers have highlighted dowry as a contributor to outcomes such as imbalanced sex ratios in India (Attané and Guilimoto 2007; Dyson 2012:446) and various forms of domestic violence (Rao 1997). I add to prior literature by providing new evidence concerning the role community support for dowry may play in the disease burden among adults—especially women—in Indian society. Communities where dowry is widely practiced are linked to health and health inequalities in mostly deleterious ways.

More broadly, this study highlights the importance of examining how health differences between men and women not only stem from individual-level sources, but also from social institutions of gender woven into the fabric of larger community environments. Focusing on community explanations of gender differences in health is especially important in countries such as India where rigorous gender orders exist. By identifying salient local systems of gendered practices, researchers can develop a more contextualized and holistic understanding of the social structures of gender that drive health disparities in different settings. As the case of the growing practice of dowry in India illustrates, gendered social structures contribute substantially to stubborn disparities in population health.

Notes

1. See for example the United Nations (2005) and the World Health Organization (2008; 2007).
2. This follows from Martin (2004) and others embedding their arguments regarding gender structures in Giddens' (1984) structuration theory.
3. I outline these theoretical perspectives for how community-level practice of dowry transfers to health and health disparities, but do not directly measure the underlying mechanisms due to data limitations. This study's assessment of the relationship between community dowry and women's and men's health is motivated by these theoretical perspectives.
4. See McEwen (1998) on the effects of stress on physical health.
5. These excluded territories comprise below one percent of the population of India.
6. These are self-reports of illness. While it is possible that self-reports of health may differ by gender even though actual health does not differ, evidence supports the conclusion that differences in women's and men's health do not depend on differential reporting of health between women and men (Case and Paxson 2005).
7. I elected to use the binary variable coding strategy for acute and chronic illness and present results from logistic regression models because (a) ancillary count models (not shown) with dependent variables measured as the number of acute or chronic conditions do not produce meaningfully different results than binary logistic regression results, and (b) logistic regression results are more readily interpretable for a wider audience.
8. Ancillary analyses (not shown) tested whether the association between community dowry and health varied by individual-level dowry. The associations between community dowry and health did not differ by individual-level dowry.
9. Because of the possibility of omitted factors that might simultaneously affect dowry and health, in ancillary models not shown, I experimented with adding variables at the individual level (electricity hours, hand washing, stagnant water at house, animals at house, respondent confidence, boys' education attitudes, son support belief) and community level (collective

efficacy, housing aid, hand washing, endogamy, age at gauna, highest education in household, highest education of male in household, years in place). These variables were not significant in any model and did not meaningfully change results.

10. Given my focus on broad gender structures and institutional patterns and in order to maintain a simpler model, I treat all non-district-level variables as level 1 variables. This approach also closely follows prior multilevel research using these data by the IHDS principal investigator and co-authors (Desai and Andrist 2010; Desai and Wu 2010).

11. For this reason, I go beyond only using standard errors clustered at the contextual level by also estimating contextual-level variable coefficients using multilevel modeling.

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Table 1. Means or Proportions for Dependent Variables by Gender

Variable	Full Sample	Women	Men	
Acute illness	0.10	0.12	0.07	***
Illness length	0.83	1.00	0.65	***
Chronic illness	0.05	0.05	0.04	***

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

Note: Significance tests indicate whether a value for males significantly differs from that of females. Data are weighted.

Table 2. Weighted Descriptive Statistics

Variable	Mean/Proportion	Standard Deviation
<i>Individual level</i>		
Female	.50	
Caste/religion		
Brahmin	.06	
Forward caste	.17	
OBC	.36	
Dalit	.21	
Adivasi	.07	
Muslim	.11	
Christian	.02	
Other religion	.01	
Age	43.65	14.21
Married	.84	
Number of children	2.32	1.91
No. persons in household	6.03	3.08
Health facility	.85	
Residence		
Metro	.11	
Urban slum	.02	
Other urban	.19	
High infrastructure village	.31	
Low infrastructure village	.38	
Years in place (logged)	4.12	.89
Dowry	.25	
Assets	11.90	6.28
Income (logged)	11.95	.35
Consumption expenditures (logged)	6.49	.70
Housing aid	.09	
Literate adult	.81	
Education		
None	.44	
1 - 5 years	.16	
6 - 9 years	.18	
10 - 12 years	.15	
College	.07	
Widow support		
Natal family	.21	
Husband's family	.27	
Both natal and husband's family	.27	

Neither	.05	
Endogamy	.09	
Village conflict	.48	
<i>Community level</i>		
Waiting time for medical care	20.72	12.53
Electricity hours	13.00	6.89
Health facility	.88	.22
Assets	12.50	4.53
Income (logged)	10.78	.52
Consumption expenditures (logged)	6.76	.46
Highest female education in household	4.85	2.77
Wages	.21	.08
Number of children	2.27	.59
Village conflict	.46	.31
Son support attitudes	.80	.16
Wife beating approval	.24	.22
Male-biased education attitudes	.11	.12
Dowry	.29	.30

Note: State dummies suppressed for brevity.

Table 3. Unstandardized Coefficients from Multilevel Models

	Acute illness		Illness length		Chronic illness	
Intercept	-3.107	***	-.722	**	-4.939	***
<i>Individual level</i>						
Female	.648	***	.577	***	.378	***
Caste/religion (forward caste = ref.)						
Brahmin	.073		.127		-.032	
Other backwards caste	.037		.059		-.100	*
Dalit	.044		.096		-.109	
Adivasi	-.090		-.022		-.482	***
Muslim	.038		.026		.030	
Christian	.234	*	.031		-.037	
Other	.069		.017		-.088	
Age	.010	***	.014	***	.056	***
Married	.058		.009		.286	***
Number of children	.016	*	.019		.035	**
Number of household residents	-.094	***	-.041	***	-.044	***
Health facility	-.065		-.058		-.007	
Residence (metro = ref.)						
Urban Slum	.119		.339		.466	*
Other urban	.311	*	.316	*	.449	**
High infrastructure village	.375	*	.439	*	.567	**
Low infrastructure village	.310	*	.351		.363	
Years in place (logged)	-.029		-.039		.070	***
Dowry	-.044		.033		.054	
Assets	-.046	***	-.065	***	.049	***
Income (logged)	-.206	***	-.263	***	-.101	*
Consumption expenditures (logged)	.382	***	.565	***	.390	***
Housing aid	.116	**	.217	**	.012	
Literate adult	-.104	**	-.046		.141	*
Education (no education = ref.)						
1 -5 years	.073	*	.042		.250	***
6 - 9 years	.004		-.121	*	.176	**
10 - 12 years	-.128	**	-.285	***	.067	
College	-.258	***	-.417	***	-.095	
Widow support (husband's family = ref.)						
Natal family	.027		.026		.071	
Both natal and husband's family	-.112	***	-.078		-.057	
Neither	-.043		.084		.017	
Endogamy	.145	**	.168	*	-.087	
Village conflict	.060	*	.059		.059	

Community level

Waiting time for medical care	.005 *	.009 **	.007 *
Electricity hours	-.013	.004	.026 *
Health facility	-.389 **	-.414 *	-.424 *
Assets	-.010	-.034	.037
Income (logged)	-.163	-.245	-.202
Consumption expenditures (logged)	.345 **	.546 **	.119
Highest female education in household	.004	.026	.088 *
Wages	-.039	-.098	1.335 *
Number of children	.299 ***	.266 **	.290 **
Village conflict	-.178	-.291 *	-.198
Son support attitudes	-.694 **	-.632 *	-.023
Wife beating approval	.151	.201	.149
Male-biased education attitudes	.232	1.100 ***	1.215 **
Dowry	.417 *	.342	-.195
Female X Dowry	.354 ***	.366 **	.340 **

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

Note: All models control for state dummies. Results suppressed for brevity. Acute and chronic illness models have an N of 102,765 and illness length an N of 102,763.

Figure 1. Predicted Probabilities: Acute Illness

Figure 2. Predicted Values: Illness Length

Figure 3. Predicted Probabilities: Chronic Illness